REMARKS

Claims 1-38 are currently pending in the subject application, and are presently under consideration. Claims 1-38 are rejected. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I.   Rejection of Claims 1-38 under 35 U.S.C. 102

Regarding claim 1, Cypher fails to teach that a first node provides a broadcast request for data and receives a read conflict response to the broadcast request from such first node. In contrast to the suggestion in the Office Action, one cited portions of Cypher discloses a system that supports both point to point (PTP) and broadcast transmission (BC) modes, with clients transmitting coherence requests to address network may be unaware of whether the coherence request will be conveyed via PTP or BC mode. See Cypher at col. 6, lines 40-50. Cypher provides no disclosure of a read conflict response that indicates a second node has a pending broadcast read request for "the data," as recited in claim 1, as this appears contrary to the explicit teachings of Cypher noted above. The Office Action also contends that Cypher's teaching at col. 14, lines 35-50, is relevant to the anticipation of claim 1. However, Cypher teaches an embodiment in which constraints are placed upon where a given operation can be placed in the global order, and that these constraints can be used to support various well-known memory models (see Cypher at col. 14, lines 35-50), but fails to teach or suggest to the structural and functional interrelationships recited in claim 1. Moreover, the ownership responsibilities (Cypher at col. 14, lines 43-50) do not contain any teaching of the responses provided in the system of claim 1.

Also contrary to the contention of the Office Action, the description of the system depicted in Fig. 12F of the system of Cypher, does not teach the first node provides a broadcast request for the data, the first node receiving a read conflict response to the broadcast request from the fist node. See Cypher Fig. 12F, col. 20, lines 20-56. Instead, the cited section of Cypher at col. 20, lines 20-60, relates generally to a particular situation in which access rights and ownership rights are transferred according to the particular situation shown in FIG. 12F.

Further, Cypher fails to teach or even suggest that a third node provides the requested data in response to the first node in response to the broadcast request from the first node.

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Significantly, the cited section in Cypher at col. 20, lines 25-40, relates to one particular approach on how a transaction can be carried out in a point-to-point mode, which does not correspond to what is recited in claim 1. See also Cypher at Col. 20, lines 58-60 discussing what is shown and described with respect to FIGS. 13A-13G.

For the reasons stated above, Cypher does not anticipate claim 1. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 1 as well as dependent claims 2-15.

The Office Action rejects claim 2 relying upon an apparently unrelated description in Cypher of that describes to selection of transmission protocol either PTP or BC mode transmission. See Cypher col. 8, lines 45-57. In contrast to the recitation in claim 2 the cited section does not teach or suggest the broadcast request provided by a first node (as recited in claim 1) is a source broadcast read request as recited in claim 2. Therefore, Cypher fails to teach or suggest claim 2. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 2.

Applicant respectfully disagrees with this contention that Cypher discloses the system of claim 3. For example, Cypher fails to teach the first node provides a read conflict response to the broadcast read request from the second node, and that the read conflict response provided by the first node indicates that the broadcast read request of the first node conflicts with the pending broadcast read request of the second node, as recited in claim 2. Instead, the Office Action cites a teaching in Cypher (at col. 15, lines 1-18), in which the coherence protocol employed by the computer system (140) has the property that reception of address packets is not blocked based on the reception of particular data packets and that access rights and ownership status can transition separately in the protocol making various combinations of coherence states possible. See Cypher col. 14, lines 50-52 and col. 15, lines 1-18. This discussion of coherency protocol properties in Cypher fails to teach or suggest a read broadcast request is pending from a second node and that a first node provides a read conflict response, as recited in claim 3. Since Cypher fails to teach or suggest claim 3, Applicant respectfully requests reconsideration and allowance of claim 3.

Claim 4 depends from claim 3 and is allowable for at least the same reasons as claim 3. Additionally, claim 4 recites a situation in which the third node provides the requested data to the second node (which is in addition to providing the requested data to the first node - from claim 1). The Office Action alleges that part of a description of Point to Point (PTP) mode transactions

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which are not broadcast requests, supports the anticipation rejection of claim 4. See Cypher col. 20 line 56 and col. 22, lines 38-49. In addition to this section of Cypher failing to teach the broadcast read request from the second node (because Cypher is describing PTP mode transactions), Cypher also fails to teach the second node filling the data provided by the third node in a cache associated with the second node, as also recited in claim 4. Instead Cypher teaches that WAIT and INV packets are sent via PTP mode transactions on different virtual networks to a single device D1 (only PTP mode not broadcast), and that the DATA packet may be received before either of the address packets in some embodiments. See Cypher Fig. 13B and col. 22. Lines 38-49. In sharp contrast to a third node providing data to the second node in response to the broadcast read request from the second node, the Cypher in describing Fig. 13B teaches a first Node (D1) via Point to Point read to own request to a second node (M) and the second node provides the data to the first node, and invalidates other copies of the data via Point to Point request. See Cypher at Fig. 13B and col. 21, line 61, to col. 22, line 54. For these reasons, Applicant respectfully requests withdrawal of the rejection of claim 4.

Claim 5 recites that the request for data broadcast by the first node is a source broadcast write request. To support the rejection of claim 5, the Office Action appears to rely on a teaching in Cypher in which the Response Network may also implement logical point to point medium and may only be used for PTP mode transactions. See Cypher col. 17, lines 15-30. That is, the cited section of Cypher relates again to a particular implementation using the PTP mode - not the broadcast mode. Accordingly, it is unclear how the Office Action can contend that these Point to Point mode transactions somehow teach a source broadcast write request. Reconsideration and allowance of claim 5 are respectfully requested.

Regarding claim 6, Cypher fails to teach or suggest a first node that provides a second conflict response to the pending broadcast read request from the second node. The cited section in Cypher at col. 23, lines 25-48 again relate generally to how a particular coherency transaction may be carried out in the PTP mode. See Col. 20, lines 57-67. In sharp contrast to claim 6, Cypher teaches that a second node M provides a point to point read to own request to a third node D3 in response to a point to point read to own request from a first node D1. See Cypher at FIG. 13C and corresponding description at Col 23. However, since the request from M to D3 was in response to the request from D1, there was no pending request from a second node, but

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rather a request subsequent to a point to point request from the first node. See Cypher at col. 23 lines 27-48. For at least these reasons and the reasons stated above with respect to claims 1 and 5, Applicant respectfully requests reconsideration of claims 6 as well as dependent claims 7-10.

In regard to claim 7, which depends from claim 6, Cypher fails to teach that the first second node in response to the second conflict response provided by the first node reissues the pending broadcast read request of the second node. Instead, the Office Action relies on a teaching in Cypher that describes point to point transactions between a first node D1 and memory node M which blocks subsequent PTP RTO transactions, but fails teach that D1 reissues the pending broadcast read request of the second node or that the first node D1, provides a second conflict response. See Cypher at col. 21. Lines 28-43. At least for these reasons, Cypher fails to teach claim 7. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 7.

Regarding claim 8, Cypher fails to teach that a second node reissues a pending broadcast read request using a forward progress protocol in response to the second conflict response provided by the first node, wherein the first cache coherency protocol (that is used to broadcast the request provided by the first node) is a source broadcast cache coherency protocol. Even though Cypher teaches that some requests can be sent in both BC and PTP modes (See, e.g., Cypher at col. 23, lines 8-12), nothing in Cypher teaches or suggests that a node that a second node would reissue a broadcast read request using a forward progress cache coherency protocol, as recited in claim 8. This becomes more evident when considered in view of claim 1 (from which claim 8 indirectly depends), which recites that the second node has a pending broadcast read request for the data. Moreover, the cited section in Cypher (col. 9, lines 11-19) describes that a small number of processors may be set according to BC mode transmissions and a large number service according to PTP mode transmissions based on how a mode table is programmed. For these reasons, Applicant requests reconsideration and allowance of claim 8.

Claim 9 depends from claim 6 and should be patentable over Cypher at least for the reasons provided in support of claim 6. Additionally, the Office Action contends that Cypher teaches claim 9 by citing a section in Cypher that teaches read to share data packets do not cause a change in the access rights at D1 and D2, or does not change ownership for the coherency unit. See Cypher col. 19 lines 50-53. Additionally the Office Action states that a Write Stream

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transaction in which an entire coherency unit is written and the device initiating the WS may receive an ACK message from the processing subsystem that most recently owned the coherency unit. See Cypher col. 19 lines 54-59. However, Cypher both here and elsewhere fails to teach a second conflict response provided by the first node prevents the second node from filling the data provided by the third node in a cache associated with the second node, as recited in claim 9. For example in Cypher, the Write Stream (WS) transaction is created by a first node, but Cypher fails to teach or suggest any conflict response would be broadcast by the first node to blocks a second node from filling the data provided by the third node in its cache. Instead, Cypher teaches that a WS transaction is broadcast from the first node (D2) and Data is written from the first node to the second node M, but that this appears to occur without any conflict response being provided by the first node D2 nor is a second node prevented from filling a request with data received from a third node. For these reasons, Cypher fails to teach or suggest the system of claim 9. Accordingly, Applicant respectfully requests reconsideration and acceptance of claim 9.

In regard to claim 10, the Office Action cites the same section of Cypher that was relied upon to reject claim 6. However, similar to as discussed with respect to claim 6, Cypher teaches a first node D1 provides a PTP RTO request to a second node M, the second node subsequently providing a PTP request to third node, such third node providing the data to the first node. See Cypher at col. 23 lines 23-45. However, claim 10 recites that a third node provides data in response to the pending broadcast read request of the second node, and that the second node fill a cache associated with the second node with the shared data and associating an invalid state with the shared data filled in the cache associated with the second node. Cypher fails to teach or suggest that the system described therein would operate in the manner recited in claim 10, namely, with the interrelationship between requests and responses. For these reasons as well as those discussed above with respect to claims 5 and 6, Cypher fails to teach or suggest claim 10. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 10.

For reasons similar to those given in support of claim 1, Cypher fails to teach claims 13 and 14. Additionally, the cited sections of Cypher at Col. 25, lines 1-38, relate again to a particular implementation of a PTP coherence transaction (See FIG. 13F and 13G) and do not describe how the first and second nodes may be arranged, as recited in claim 13. Additionally, the cited section in Cypher to reject claim 14 relates to a description of some particular

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coherence requests and not to cache controllers, as recited in claim 14. Accordingly, Applicant requests reconsideration and allowance of claims 13 and 14.

Regarding claim 15, Cypher fails to teach or suggest a hybrid cache coherency protocol as recited in claim 15. Instead, Cypher teaches that a node may provide transactions either by a PTP or a BC mode transaction. See Cypher at col. 18, lines 33-38. Cypher also teaches that the nodes of the system may be unaware of whether the coherence request will be conveyed via PTP or BC mode. See Cypher col. 6, lines 40-45. However, Cypher fails to teach or suggest that the first, second and third processors employs an associated second protocol to reissue a request for the data in response to the request failing in the source broadcast protocol, the second protocol employing a forward progress technique, as recited in claim 15. At least for these reasons, Cypher fails to teach or suggest claim 15. Applicant respectfully requests reconsideration and allowance of claim 15.

In regard to Claim 16, Cypher fails to teach a second processor node that is operative to provide a first conflict response to the first source broadcast request when the second source broadcast request is a read request and to provide a second conflict response to the first source broadcast request when the second source broadcast request is a write request. In contrast to the contention in the Office Action, the cited section of Cypher teaches how a home node reacts to PTP read-to-own coherence requests, rather than the second processor node being operative to provide conflict responses to the first source broadcast request depending on the type of request. See col. 21, lines 26-47. Since Cypher does not teach or suggest that a second node is operative to provide the first and second conflict responses, as recited in claim 16, Cypher consequently also fails to teach the action of the first processor in response to receiving a read conflict response from the second processor, in the manner recited in claim 16. Instead, Cypher teaches a first processor node (M) operative in response to a read response from a second node (D1), to generate a wait response and an invalidate response, and a data response (not a read conflict response) to implement a cache in the second node (D1). See Cypher, Fig. 13B and col. 22 lines 25-46. Additionally, the Office Action appears to erroneously rely upon sections of Cypher that refer to Coherence Transactions in Point-to-Point (PTP) mode in contrast to claim 16, because claim 16 recites some of the transactions are source broadcast transactions. See Cypher at Col 20, lines 57-67. For these reasons, Cypher fails to teach claim 16. Accordingly, Applicant

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respectfully requests reconsideration and allowance of claim 16 and claims 17-23 that depend from claim 16.

Regarding claim 17, Cypher fails to teach that the first processor node issues a request for "the data" in response to a write conflict response form the second processor node. Instead, the cited section of Cypher teaches that a node operating in BC mode may not be able to receive a local Point to Point RTS transaction, further suggesting that the first processor in the system of Cypher may not be operative in response to a broadcast write conflict response from the second processor to issue a request for the data using a forward progress technique. See Cypher at col. 24 lines 41-44. Therefore, Cypher fails to teach the system of claim 17. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 17.

Applicant respectfully disagrees with the contention that Cypher discloses claim 18 since Cypher fails to teach or suggest that "the second conflict response" from the second processor node prevents the first processor node form implementing the cache fill with the data provided by the third node. Instead, the office action cites sections of Cypher describing PTP coherence transaction depicted in FIGS. 13A and 13G, each of which relates to transactions between 2 nodes M and D, which transactions occur in the PTP mode. See Cypher at Fig. 13A and 13G, and col. 25 lines 13-34. Therefore, Cypher fails to teach or suggest claim 18. Accordingly, Applicant requests reconsideration and allowance of claim 18.

In regard to Claim 20, in addition to the reasons given in support of claim 16, Cypher also fails to teach or suggest that the source broadcast request issued by the first processor node might exist concurrently with the source broadcast request issued by the second processor. The cited sections of Cypher (col. 15, lines 25-55) relates generally to the types of access rights and ownership status, and are silent on source broadcast requests for "the data" (as recited in claim 16) exist concurrently. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 20.

For reasons similar to those stated in support of claims 10 and 16, Cypher fails to teach or suggest claim 21. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 21.

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For reasons similar to those stated in support of claims 14 and 16, Cypher fails to teach or suggest claim 22. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 22.

Applicant respectfully requests reconsideration and allowance of claim 23 for reasons similar to those stated in support of claim 15 and 16.

Regarding claim 24, the Office Action appears to have failed to include a rejection of claim 24, as required by Title 37 of the C.F.R., which identifies a teaching in Cypher to support its rejection. The Office Action skips from claim 23 to claim 25. Office Action at page 10. Nonetheless, Cypher fails to teach or suggest claim 24 for similar reasons to the reasons stated in support of claim 16. For at least these reasons, Applicant respectfully requests reconsideration and allowance of claim 24 and dependent claims 25-27.

Additionally, Applicant respectfully requests reconsideration and allowance claim 25 for reasons similar to the reasons stated in support of claims 24 and 17.

For reasons similar to the reasons given in support of claim 18, Cypher fails to teach or suggest the system of Claim 26, such that claim 26 is patentable.

Cypher also fails to teach or suggest claim 27 for reasons similar to those discussed above with respect to claims 10 and 24. Accordingly, Applicant respectfully requests withdraw of the rejection of claim 27.

Claim 28 is patentable over Cypher for reasons similar to those provided in support of claim 15.

The Office Action relies upon the same reasoning for rejection of Claim 1 for the rejection of claim 29. However, similar to as discussed above with respect to claim 1, Cypher is deficient in teaching the system claim 29, which is written in means plus function format. For example, the discussion of broadcast transactions in Cypher fails to teach or suggest the means for placing the data from a third node in a cache associated with the first node in response to the read conflict response from the second node. See Cypher Fig. 12A to 12F and col. 18, line 33, to col. 20, line 56. For these reasons and those discussed with respect to claim 1, Cypher fails to teach claim 29. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 29 and dependent claims 30 to 33.

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Claim 30 is patentable over Cypher for at least the reasons similar to the reasons provided in support of claim 4 and claim 29.

For reasons similar to those previously stated in support of claim 8, Cypher fails to teach or suggest the system of claim 31. Accordingly, Applicant respectfully requests withdraw of the rejection of claim 31.

Cypher fails to teach a second conflict response from a first node, as recited in claim 32, for reasons similar to that given in support of claim 18. Applicant, therefore, respectfully requests reconsideration and allowance of claim 32.

Cypher fails to teach or suggest claim 33 for reasons similar to those discussed above with respect to claim 27. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 33.

The Office Action contends that the same reasoning used for claims 1 and 29 supports the rejection of claim 34. Applicant disagrees that Cypher teaches or suggests claim 34 at least for the reasons given in support of claim 1 and 29. For example, Cypher fails to teach or suggest providing a read conflict response to the first node from a second node in response to the source broadcast request from the first node, the read conflict response indicating that the second node has a pending broadcast read request for the data. For these reasons and for reasons similar to those discussed with respect to claims 1 and 29, Cypher fails to teach or suggest claim 34. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 34 and dependent claims 35 to 37.

The Office Action contends that the system of Cypher teaches claim 35 and cites the teaching in Cypher (at col. in which employs PTP transactions to provide read to own data requests. In contrast to the cited section of Cypher, claim 35 recites features about the source broadcast read requests provided from the first node. For this reasons and for reasons similar to those discussed with respect to claim 9, Cypher fails to teach or suggest claim 35. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 35.

Cypher also fails to teach or suggest claim 36 for reasons similar to the reasons given in support of claims 18 and 26. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 36.

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Applicant respectfully requests reconsideration and allowance of claim 36 for reasons similar to the reasoning discussed above with respect to claims 8, 17, and 25.

Applicant respectfully disagrees with the contention that Cypher discloses claim 38. Cypher fails to teach that a computer system being further operative to reissue a request for the data from a source node using a forward progress protocol mode request when there is a source broadcast protocol second conflict with another node in the computer system, as recited in claim 38. The Office Action relies upon Cypher's description of buffering packets using a Synchronized Multicasts property and the Synchronized Networks property employing queues in its rejection of Claim 38. See Cypher col. 28 lines 1 to 67. The description in Cypher of a computer system that employs queues fails to teach a second conflict response and reissuing a request for the data from a source node using a forward progress protocol as recited in claim 38. Instead, the queues taught in Cypher suggest that a buffered packet request would not require reissue because the packet is stored in the queue until processing on the packet is completed. See Cypher col. 27 lines 22-37. Moreover, nothing in Cypher teaches or suggests the interrelationship and use of the source broadcast protocol mode and the forward progress protocol mode that is recited in claim 38. The approach taught by Cypher instead suggests that a either the BC or PTP mode is utilized for a given transaction, as determined by the mode unit. See Cypher at Col. 6, lines 28+, and the section (Hybrid switch network) beginning at Col. 6, line 54, and the section (Transmission Mode Table) beginning at Col. 7, line 64. For these reasons, Cypher fails to teach claim 38. Accordingly, applicant requests reconsideration and allowance of claim 38.

II. CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Should the Examiner have any questions concerning this paper, the Examiner is invited and encouraged to contact Applicant's undersigned attorney at (216) 621-2234, Ext. 106.

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No additional fees should be due for this response. In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to Deposit Account No. 08-2025.

Respectfully submitted,

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